In addition, your station grounding might affect your power and V.S.W.R. measurements. When you connect all of your equipment together, you introduce new paths for RF energy to flow (in addition to your coax shields).

As an interesting point, however, many users find that the absolute value of the displays on their meters doesn't really matter that much. For power, the idea is to maximize it. For V.S.W.R., the idea is to come as close to 1.0 as possible (below a certain minimum, of course).

Most measurement systems for high frequency (HF) power and V.S.W.R. measurement consist of two major components. The first is the sensing system (directional coupler), the other is the display system. There are commercially available systems that integrate both of these components into one package (a conventional watt/V.S.W.R. meter) and some that separate the two (such as the P-2000CW).

USING THE P-2000CW

The P-2000CW was designed with sight-impaired operators in mind. The power button is located on the extreme left side of the cabinet, and the V.S.W.R. button is located on the extreme right side. The speed and volume controls have knobs with pointers. Finally, the unit has an audible alarm that will signal the operator if a preset V.S.W.R. level is exceeded.

GENERAL OPERATION

When power is first applied to the P-2000CW, it "signs on" with the letters "RFA." Once you hear those letters, the unit is ready to help monitor your station. The audible interface is implemented using International Morse Code, and you can set the speed of the CW from 5 to about 45 words per minute. In addition, jumper options allow you to select abbreviated CW for the zero, one and nine characters, select one of two sidetone frequencies, and to tell the unit to report the observed power in 10 watt increments or to use its maximum resolution. Each of these items is discussed later in this manual.

MORSE CODE

The P-2000CW uses the International Morse Code for reporting power and V.S.W.R. The following characters are used:

One	di-dah-dah-dah-dah
Two	di-di-dah-dah-dah
Three	di-di-di-dah-dah
Four	di-di-di-di-dah
Five	di-di-di-di-dit
Six	dah-di-di-di-dit
Seven	dah-dah-di-di-dit
Eight	dah-dah-dah-di-dit
Nine	dah-dah-dah-dah-dit
Zero	dah-dah-dah-dah-dah

If you select the "abbreviated CW" mode, the numbers one, nine and zero are abbreviated as follows:

One	di-dah
Nine	dah-dit
Zero	dah

This is a common "shorthand" used by CW operators and really speeds up number reporting.

In most installations, it is still most practical to install the measurement equipment in the shack. The best solution to the above problem is to use high quality feedlines, connectors, etc. to make your installation. By high quality, we mean components that are rated for the power, frequencies, and distances you will be using. Then, use a 50 ohm dummy load to test each feedline system after you have installed it. You can verify that your feedlines have the predicted losses and low V.S.W.R. readings. With this knowledge in mind, you can now use the information your shack-mounted power and V.S.W.R. meter gives you.

As mentioned above, each element in the connection system between the transmitter and the antenna introduces some amount of loss and increased V.S.W.R. The goal of any design is to minimize the losses and V.S.W.R., while maximizing instrument accuracy over the specified frequency range.

As in any engineering exercise, tradeoffs must be made between performance and cost. You will find that most commercially available instruments do not introduce significant losses or V.S.W.R. However, you can find wide variations in accuracy among several watt/V.S.W.R. meters. Therefore, you have to be cautious in comparing readings between various meters.

not just the antenna. And in some cases, the readings can be misleading.

For example, you might have a perfectly resonant (50 ohm) antenna running on 10 meters. You connect it with 150 feet of RG-58 cable. Your station-mounted wattmeter shows that you are delivering 100 watts from your transmitter into this antenna system.

Here's the problem: the RG-58 cable exhibits a loss of 2.0 dB per one hundred feet at 30 MHz. This means that if you mounted your wattmeter at the antenna, you would read only 50 watts!

Your V.S.W.R. measurements can be affected, because losses in the feedline reduce the level of the reflected voltages as well. Therefore, you can be lulled into a sense of security about your V.S.W.R.; when, in fact, it is higher at your antenna than you see on your meter.

Wattmeters like the P-2000CW allow you to mount the directional coupler at the antenna (or at least near it, with some restrictions). By doing this, you can see what is happening near the antenna. However, additional installation costs are incurred, because you must bring the sensing cables back to the shack.

Some other characters are used by the P-2000CW. These are:

R	di-dah-dit
F	di-di-dah-dit
A	di-dah
O	dah-dah-dah
K	dah-di-dah
V	di-di-di-dah
.	di-dah-dit

The unit always abbreviates the period from its "pure" form of di-dah-di-dah-di-dah. You will only hear the period when V.S.W.R. is being reported (more on this below).

REPORTING POWER

Whenever you transmit, the P-2000CW monitors the peak RMS power during a transmission. This value can be reported at any time during a transmission by simply pressing the left button on the unit. The observed peak RMS power will be reported.

When your transmission is finished, the P-2000CW will "remember" the last transmission's peak RMS power and will report it the next time the left button is pressed. Once it is reported after a transmission, the internal memory is cleared to zero. This is done to assure you that the transmitter is indeed unkeyed. Any subsequent presses of the button will report zero watts.

The P-2000CW is set for maximum resolution when shipped from the factory. If you would like your power presented in 10 watt increments, refer to the "Jumper Selectable Options" section below.

REPORTING V.S.W.R.

At any time during or after a transmission, you can report your V.S.W.R. To do so, simply press the right button on the P-2000CW. The V.S.W.R. last measured will be reported. Note that the period is always sent as di-dah-dit. You will hear values ranging from 1.1 up to 9.9. If the V.S.W.R. is higher than 9.9, then 9.9 is reported.

TUNING FOR MINIMUM V.S.W.R.

The P-2000CW has a mode you can use to set an antenna tuner or "matchbox" using audio feedback. To enter this mode, key up your transmitter, and then press the right button until you hear the letter "R" (di-dah-dit). Release the button. The P-2000CW will emit a pulsing (or steady) tone. The higher the V.S.W.R., the slower the tone will pulse. Adjust your tuner for the fastest tone. The tone becomes steady below about 1.3:1. When finished tuning,

unobtainable because there is always a small amount of reflected voltage on the line). A V.S.W.R. of 2.0 indicates a power loss of about 10%, at 3.0 the loss is about 25%, and it gets worse from there. By loss, we mean that, for example, a transmitter looking into a 3.0 to 1 V.S.W.R. will only be able to deliver 75% of its output power to the load (the antenna). To summarize, the transmitter must see an exact impedance match (50 ohms in this case) to deliver full power to the load.

Again, to achieve maximum power transfer from the transmitter to the antenna, an impedance match between the antenna system and the transmitter is required. Normally, the desired impedance is 50 ohms. Antennas need to be designed and built to match this impedance.

In any antenna system, the object is to get the most power delivered to the actual antenna. Feedlines, antenna switches, connectors, and yes, wattmeters all contribute to losses between an RF source and an antenna. You can conclude from all this that the best place to make a power or V.S.W.R. measurement is actually at the antenna, and this is indeed the best place. In most installations, however, power and V.S.W.R. measurements are made in the shack near the transmitter. This is generally not a problem, as long as the user realizes that the readings that are being taken represent those of the entire antenna system,

TECHNICAL DISCUSSION

RF POWER AND V.S.W.R. MEASUREMENT

The purpose of this section of the manual is certainly not to go into great detail on the theory of the measurement of RF power and voltage standing wave ratio (V.S.W.R.). There are many more publications on the subject dating back 50 or more years. But we do want to discuss the most important issues pertaining to this matter.

For the purpose of this discussion, RF power refers to the peak voltage measured on the line, multiplied by itself, and divided by 50 (voltage squared divided by the impedance of the load, which is watts).

V.S.W.R. is calculated by finding the sum of the forward and reflected voltages on the line and dividing by the difference of the forward and reflected voltages on the line:

$$\frac{\text{Forward Voltage} + \text{Reflected Voltage}}{\text{Forward Voltage} - \text{Reflected Voltage}} = \text{V.S.W.R.}$$

You can see that if there is no reflected voltage, you will be dividing the forward voltage by the forward voltage, which is 1.0. A V.S.W.R. of 1.0 is ideal (and actually

press the right button again or unkey your transmitter. The P-2000CW will respond with "OK" (dah-dah-dah dah-di-dah). You are now "tuned up."

TUNING FOR MAXIMUM POWER

You can "peak" an amplifier using the P-2000CW. To do so, key up your transmitter, and then press and hold the left button on the unit until you hear an "R" (di-dah-dit) character. Release the button, and you will hear a raspy tone. This tone will increase in frequency as the power applied is increased. You can learn the relationship between the frequency and the power by exiting this mode and reporting the power. Exiting this mode is accomplished by pressing the left button again or unkeying your transmitter. The unit will respond with "OK" (dah-dah-dah dah-di-dah), and you are now "peaked up."

THE V.S.W.R. ALARM SYSTEM

The P-2000CW continuously monitors your V.S.W.R. during all transmissions. The observed value is compared against a preset value (you can set), and if that value is exceeded, an alarm condition occurs. While RF is present during an alarm condition, the unit will send "V" (di-di-di-dah) characters to warn you of the condition, and the V.S.W.R. alarm relay will drop out. As soon as RF is removed, the relay is re-energized and the "V" characters stop.

Setting the Alarm Level

You can set the V.S.W.R. alarm level using a small screwdriver. There is a small push button on the back of the unit. If you press this button, the unit will report the V.S.W.R. alarm level setting. It is preset at the factory to 3.0:1. You can set if from 1.1:1 to 9.9:1 using the potentiometer located next to the reporting button. If you are getting what seem to be "false" V.S.W.R. alarms, check this level setting to make sure that someone didn't change it.

JUMPER SELECTABLE OPTIONS

There are three parameters that can be field configured. These are abbreviated/full CW, high/low resolution, and high/low frequency sidetone. To access the jumpers, the knobs and all front panel nuts must be removed. Also, the cover mounting screws should be removed as well.

headphones, and it should otherwise have no effect on the operation of your headphones. A 1/8-inch connector is used for the headphone connections. Simply wire the output of the P-2000CW in parallel with your headphones.

ALARM WIRING

The P-2000CW can be configured to interrupt the "RELAY" or "VOX" line between your amplifier and radio. When the unit detects an excessive level of V.S.W.R. (you can set it), a relay is opened. This relay will stay open until all RF is removed. There are two RCA jacks on the rear of the unit that are used for this purpose. To connect, unplug the RCA jack from your amplifier and plug it into one of the jacks on the back of the unit. Use the supplied RCA-to-RCA cable to connect from the unit back to your amplifier. Note: many amplifiers use the RCA-type connector arrangement. If yours does not, you will have to make an appropriate connector arrangement.

operate properly. This is a common problem (based on the calls we receive).

The coupler is intended to be installed in a dry location. It is acceptable to mount it outdoors as long as you provide a water-tight enclosure to house the coupler. You may extend the BNC cables up to 400 feet as long as you use high quality shielded cable.

DC WIRING

The P-2000CW requires 12 to 16 VDC at less than 100 milliamperes. A power cord is provided. The white-striped lead of this power cord should be connected to the positive terminal of the power supply. If you are using the optional power pack, simply plug-in the connector. If you are using a third party power pack, be certain that the positive lead on the connector is the center "barrel" or pin.

HEADPHONES

The P-2000CW has a headphone output. The internal speaker is disabled when headphones are connected. Since there are so many different types of headphone arrangements, no attempt has been made to describe all the various types of connections. The P-2000CW will play its tones in parallel with the left or right channel of your

Abbreviated CW

As described above, the P-2000CW can use abbreviated CW for the numbers one, nine and zero. The factory default is to use the full versions of these characters.

- Jumper JC enables abbreviated CW
- Jumper JD enables full CW (factory default setting)

10 W Resolution

If the full resolution of the P-2000CW is not needed, a lower resolution mode may be selected. In high resolution mode, the P-2000CW will report power using the full resolution of the analog to digital converter. This results in 256 values from 0 to 2,030 watts. In low resolution mode, values from 0 to 2,030 watts are reported in increments of 10 watts. These values are **truncated**, not rounded. For example, in low resolution mode, 100 watts, 101 watts and 109 watts are all reported as 100 watts.

- Jumper JE enables low resolution mode
- Jumper JF enables high resolution mode (factory default setting)

High Sidetone/Low Sidetone

The P-2000CW can be configured to use two sidetone frequencies. One frequency is about 700 Hz, and the other is about 1000 Hz.

- Jumper JA is the higher sidetone
- Jumper JB is the lower sidetone (factory default setting)

be caused by reversing the cables, but the system will not

INSTALLATION

The P-2000CW is intended to be installed in a dry location. Try to avoid direct sunlight whenever possible (especially in mobile installations).

HF COUPLER

The P-3000-C HF coupler should be installed between the last RF source (transmitter/amplifier) and your antenna. If you use an antenna matching device (tuner or matchbox), then the coupler should be installed between it and the RF source. Do NOT install the coupler after an antenna matching device as the coupler will then measure your antenna; not the match being presented to the transmitter. Refer to the figures for installation details.

Standard SO-239 type connectors are provided for the RF connections. Use a short jumper to connect the RF source input on the coupler to your transmitter. Connect the cable coming from your antenna/matching unit to the antenna connector. If desired, the coupler may be grounded using the #10 stud provided.

Connect the BNC cables from the coupler to the controller. One of the cables has a red marker on it, and we usually use this one as the "forward" signal cable. No damage will

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ACCURACY AND CALIBRATION

The P-2000CW uses an eight-bit analog to digital converter to analyze the signals presented. This results in a 0.4% overall resolution in this part of the system. The P-2000CW is designed to operate over a wide frequency range (1.8 MHz to 30 MHz). The overall accuracy is specified as +/- 10% of the **reading** over this range.

You will find that you can achieve much higher accuracy at a given frequency and power under the following conditions:

1. You must have a 50 ohm power source
2. You must have a calibrated power meter
3. You must have a 50 ohm load impedance

If you have these resources available, you can calibrate the P-2000CW to give you more accurate readings at your specified power and frequency. Note that unless you perform this calibration at about 14 MHz, you will probably cause the P-2000CW to be out of specification at the other end of the spectrum from where you calibrated it.

To calibrate your P-2000CW, you'll need the following equipment and tools:

1. RF power source, 50 ohms
2. Calibrated wattmeter (or other reference)
3. 50 ohm load impedance (dummy load)
4. 3-1/2 digit DC voltmeter
5. Small Phillips and straight blade screwdrivers
6. 12 volt (nominal) power source for the P-2000CW

The calibration procedure is as follows:

1. Open the P-2000CW.
2. Connect the directional coupler in a normal fashion using the items mentioned above.
3. Apply your known power (50 W minimum) to the device.
4. Adjust potentiometer R4 so that the power reported agrees with your reference meter.
5. Using a 3-1/2 digit voltmeter, note the DC voltage with RF applied at test point TP2. At 100 W, this voltage should be about 1.1 VDC. Shielded test leads are suggested.
6. Remove RF power.
7. Reverse the input and output coax cables on the directional coupler. Note: do NOT reverse the BNC cables.
8. Apply the same level of RF power to the P-2000CW as you used for the forward calibration.
9. Using your 3-1/2 digit voltmeter, adjust R3 so that the voltage on test point TP1 reports the same as you heard on test point TP2 earlier.
10. Calibration is completed. Reassemble the P-2000CW.

5. The P-2000CW should respond with the CW letters "RFA."
6. Adjust the speed (left) and volume (right) controls as desired.
7. Press the left button on the controller. The P-2000CW should respond with "OW."
8. Press the right button on the controller. The P-2000CW should respond with "1R1." We use the letter "R" (di-dah-dit) for indicating the period character.

Once these initial tests have been performed successfully, disconnect power from the P-2000CW, and proceed to the INSTALLATION section of this manual.

INITIAL SETUP

Unpack the P-2000CW. The box should contain:

- ☐ P-2000CW controller
- ☐ P-3000-C HF coupler
- ☐ Dual BNC-to-BNC cable assembly
- ☐ RCA-to-RCA cable
- ☐ 12VDC power cord or optional power pack
- ☐ Warranty card
- ☐ This manual

If anything is missing, give us a call and we'll take care of you. Please take a few moments now to send in your warranty card.

To verify initial operation of the P-2000CW, perform the following steps:

1. Locate the P-2000CW controller.
2. Connect the power cord to 12VDC. The white-striped lead should be connected to the positive terminal of the supply.
3. Set the controls on the front panel to their mid-position (the pointers should be up).
4. Plug the power cord into the power jack on the controller.

We calibrate the P-2000CW using this procedure at the factory. Our procedure uses a calibrated Bird® Model 43 and 1000 H sensor slug. We calibrate at 500 watts on 14.2 MHz.

REMOTE COUPLER MOUNTING

There is no reason that you cannot mount the directional coupler remotely. However, you will need longer cables terminated with BNC connectors. In addition, the directional coupler is not designed for outdoor use, so you will have to put it in another enclosure.

You can expect changes in accuracy with extremely low temperature. We have tested to -10 degrees C, and the changes are minimal at that temperature.

We have tested the directional coupler with 500 feet of cable, and it performs well. Be aware though, you will be reading power at the other end of a feedline. Maybe you don't really want to know what's out there!

SPECIAL DIRECTIONAL COUPLER CONNECTORS

If you like to use "N" type connectors, contact the factory. "N" connectors are available.

IN CASE OF TROUBLE

The P-2000CW is well designed and should give you many years of trouble-free service. Most problems usually occur during setup and installation. If the items listed below aren't sufficient to help solve your problem, be sure to give us a call at 1.800.423.7252 or 440.974.1961.

Unit will not come on

Check your power connections. Are you using 12 volts DC? Is the polarity correct?

High V.S.W.R. reported, little or no forward power reported

Check to see that the RF SOURCE and ANTENNA coax cables are connected properly. Also, be sure that the BNC cables are connected properly. Most of the calls we receive are a result of problems with these cables.

V.S.W.R. doesn't change when adjusting the tuner

Be sure that the P-2000CW directional coupler is installed **AHEAD OF** the tuner (between your RF source and the tuner). If your rig has an internal tuner, be sure to turn it off to take readings. Internal tuners cause all external measuring instruments to become inaccurate.

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Reports (sometimes) grossly inaccurate readings

The unit might have been recalibrated. Check and recalibrate as necessary. Also, remember that the most accurate power readings occur when your source and load impedances are very near 50 ohms (V.S.W.R. reports close to 1.0:1). The effects of mismatched loads are most pronounced below 10 MHz, where you will often observe higher than "possible" power reportings when the V.S.W.R. exceeds 1.7:1 or so. This is a normal artifact of power measuring systems using sensors, such as those used in the P-2000CW.

If you are experiencing other problems, give us a call and we'll help you out as quickly as possible.

SPECIFICATIONS

Frequency range:	1.8 to 30 MHz
Line impedance:	50 ohms nominal
Range:	5 to 2,030 watts, 1.0 to 10 V.S.W.R.
Accuracy:	+/- 10% of reading
Capture time:	Less than 100 milliseconds
CW speed:	5 to 45 wpm
Audio power:	1 watt nominal
V.S.W.R. alarm:	Minimum: 1.1:1 Maximum: 10.0:1 Relay: 1.0 amp, 24 VDC maximum Response: less than 300 milliseconds
Power required:	12 VDC at 100 ma
Dimensions:	Unit 2.0"x4.0"x8.0" Coupler 4.5"x3.75"x2.25"
Shipping weight:	4 lbs. nominal

Specifications subject to change without notice.

DISCLOSURE REQUIRED BY THE FEDERAL COMMUNICATIONS COMMISSION

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. The equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, might cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Copyright and Trademark Disclosure

RF Applications and P-2000CW are trademarks of RF Applications, Inc.

The firmware in the P-2000CW is copyrighted.
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IMPORTANT

The P-2000CW is designed to operate from a 12 to 16 volt DC power source. Do not connect it to AC (especially line voltage). As with all electronic equipment, keep the P-2000CW out of direct sunlight and keep it dry.

IF YOU HAVE PROBLEMS

We want you to be satisfied with your purchase. If you have any type of problem, please check the "In Case of Trouble" section of this manual. If your problem persists, call our Customer Service Department at 440.974.1961. Please have the P-2000CW and this manual at hand when you call.

LIMITED WARRANTY

Your P-2000CW is warranted by RF Applications, Inc. to be free of defects for two years from the date of purchase. **THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS.** In no event will RF Applications, Inc. be liable for consequential damages.

If you must return the unit to the factory, you must obtain authorization from the factory. Be sure to provide a copy of your original purchase receipt to validate your warranty. We will repair the P-2000CW during the warranty period at no charge. We will not honor the warranty, if in our opinion, the product has been damaged due to misuse or subjected to adverse environmental conditions. We might elect not to honor the warranty on units modified by you.

After the warranty has expired, you may return the unit to the factory for repair (after receiving authorization to do so). We will repair the unit at a flat fee of US$60.00 plus shipping charges of US$6.00 (domestic, UPS ground). Please enclose a check, money order, or credit card information to cover repair costs and shipping.

Any information you can provide regarding the problem you are having would be very helpful. Please be sure to give us a daytime telephone number in case our service technicians have any questions for you.

Please call for shipping instructions if you are returning the P-2000CW to us. Some states might allow you additional rights under this warranty.

Any unit for return or repair should be sent to our factory address:

RF Applications, Inc.
Manufacturing Facility
7345 Production Drive
Mentor, OH 44060

Thank you very much for purchasing this product. Please give us your feedback.

RF Applications, Inc.

August 1996

INTRODUCTION

Thank you very much for purchasing the RF Applications, Inc. P-2000CW Audible RF Power/ V.S.W.R. Indicator. The P-2000CW was developed for use by individuals that, for whatever reason, cannot see a conventional meter readout. Such individuals include sight-impaired and mobile operators. The P-2000CW offers a rich set of RF signal monitoring features, many of which are not available even on conventional RF power and V.S.W.R. meters. Among these features are:

- RF power reporting from 0 to 2,030 watts
- V.S.W.R. reporting from 1.1:1 to 9.9:1
- V.S.W.R. tuning mode
- power peaking mode
- variable V.S.W.R. alarm system with audible reporting
- amplifier interrupt relay for high V.S.W.R. conditions
- variable speed and volume CW audible interface
- headphone interface

The front panel of the unit is organized to facilitate easy location of the controls.

RF Applications, Inc.

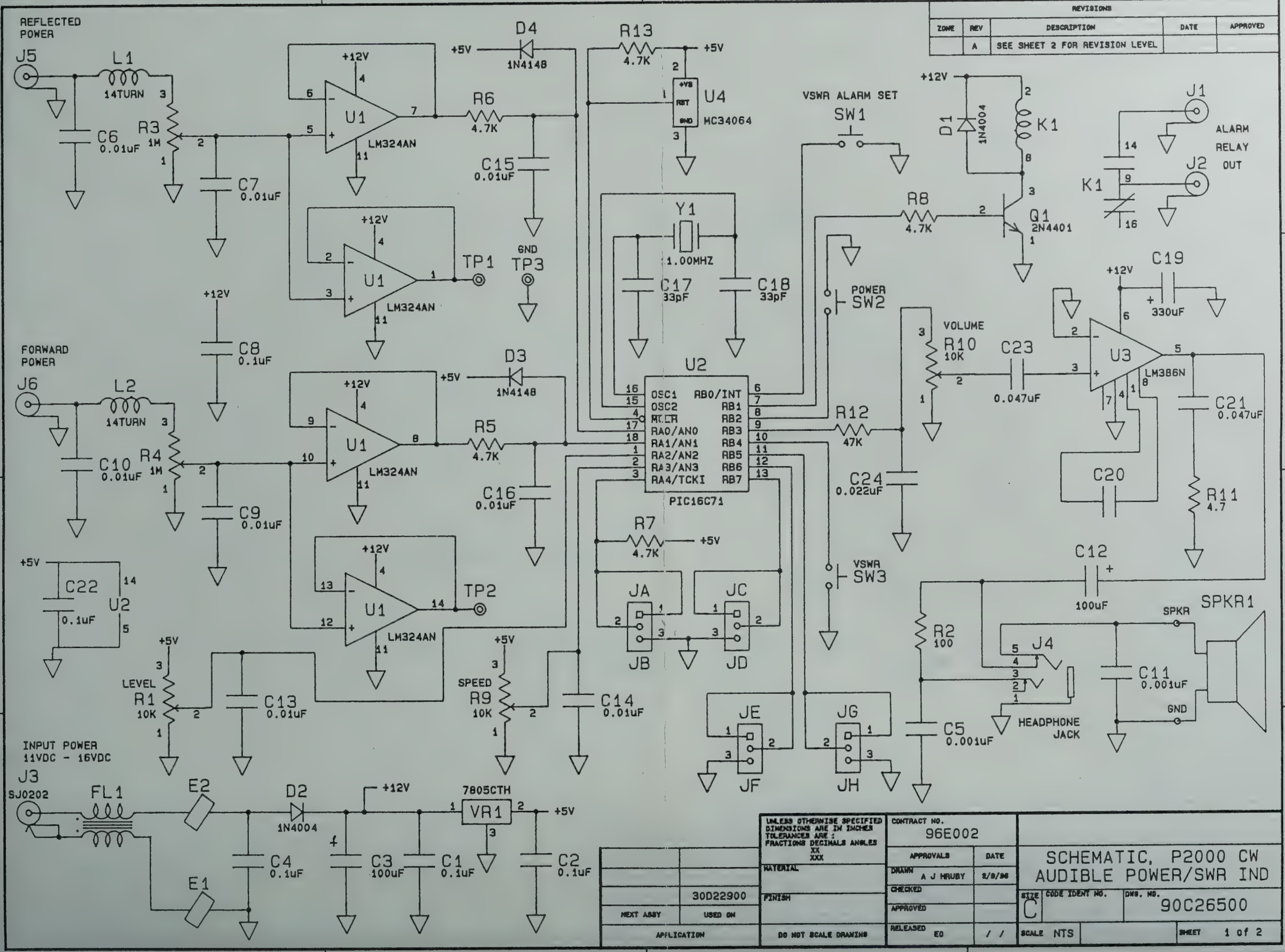
User's Manual

P-2000CW

Audible RF Power/ V.S.W.R. Indicator

RF Applications, Inc.
7345 Production Drive
Mentor, OH 44060
440.974.1961

Manufactured in the U.S.A.
Part Number 96A07400
Revision A
August 1996



REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A	SEE SHEET 2 FOR REVISION LEVEL		

	30D22900
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE :
FRACTIONS DECIMALS ANGLES
XX
XXX

MATERIAL

FINISH

DO NOT SCALE DRAWING

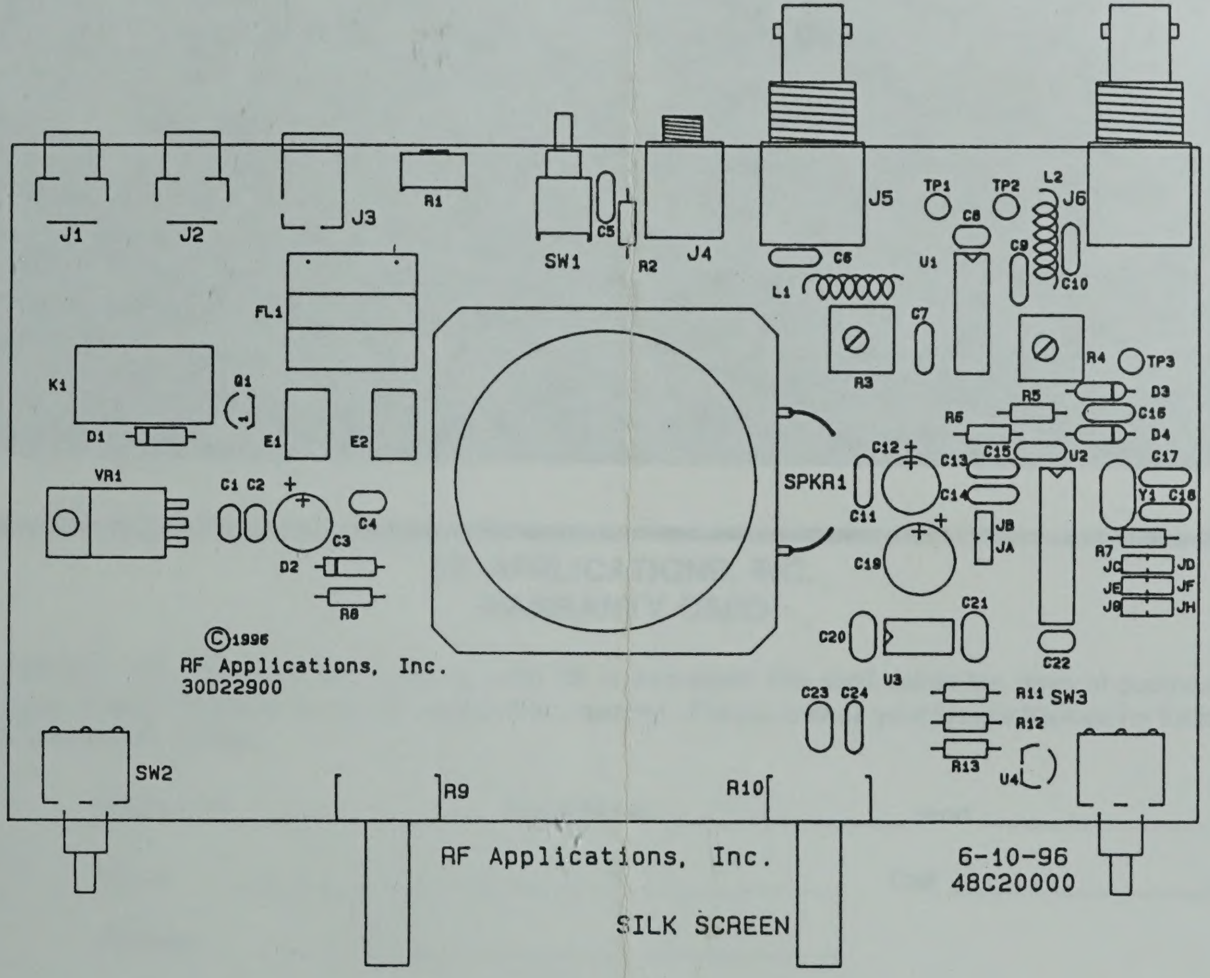
CONTRACT NO.
96E002

APPROVALS	DATE
DRAWN A J HRUBY	2/8/96
CHECKED	
APPROVED	
RELEASED EO	/ /

SCHEMATIC, P2000 CW
AUDIBLE POWER/SWR IND

SIZE C
CODE IDENT NO.
DWG. NO. 90C26500
SCALE NTS
SHEET 1 of 2

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A	E.O. #		



	30D22900
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE :
FRACTIONS DECIMALS ANGLES
XX
XXX

MATERIAL

FINISH

DO NOT SCALE DRAWING

CONTRACT NO.
96E002

APPROVALS	DATE
DRAWN	2/8/96
CHECKED	
APPROVED	
RELEASED EO	/ /

SCHEMATIC, P2000 CW
AUDIBLE POWER/SWR IND

SIZE C
CODE IDENT NO.
DWG. NO. 90C26500
SCALE NTS
SHEET 2 of 2

RF APPLICATIONS, INC.
WARRANTY CARD

IMPORTANT: To make this warranty valid, fill in and return this card within ten days of purchase. Upon receipt of this card, we will register this warranty. Please consult your User's Manual for further warranty information.

Model No. ____________ Serial No(s). ____________ (and ____________)

Name ________________________________ Call ____________

Address ________________________________

____

Telephone ( ) ________________________

Purchased From ________________________ Date ____________

We feel it is important to offer quality products and services to our customers and have taken pride in manufacturing this product. Thank you for your purchase.

February 1995

Place
Stamp
Here

RF APPLICATIONS, INC.
7345 PRODUCTION DRIVE
MENTOR, OH 44060-4858